

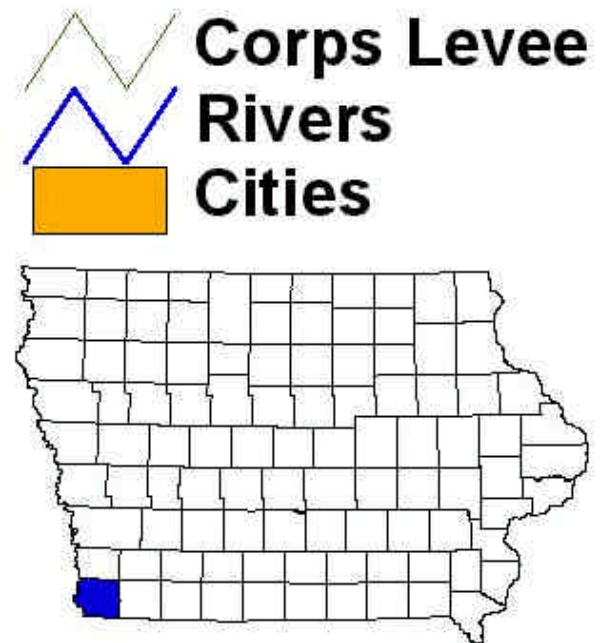
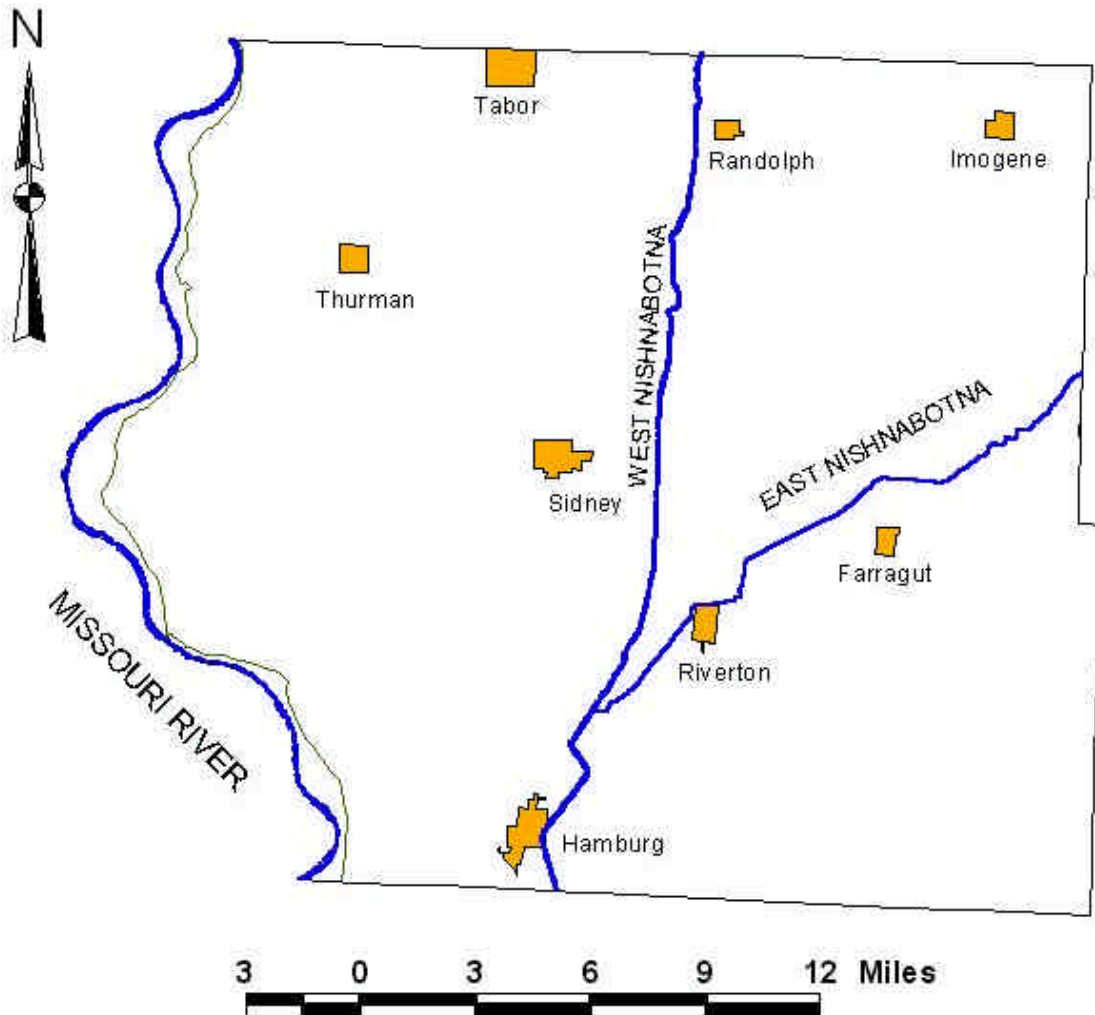
Two Rivers Wetland and Flood Plain Restoration Projects of Fremont County, Iowa

By David Carter,
Fremont SWCD Wetland Specialist

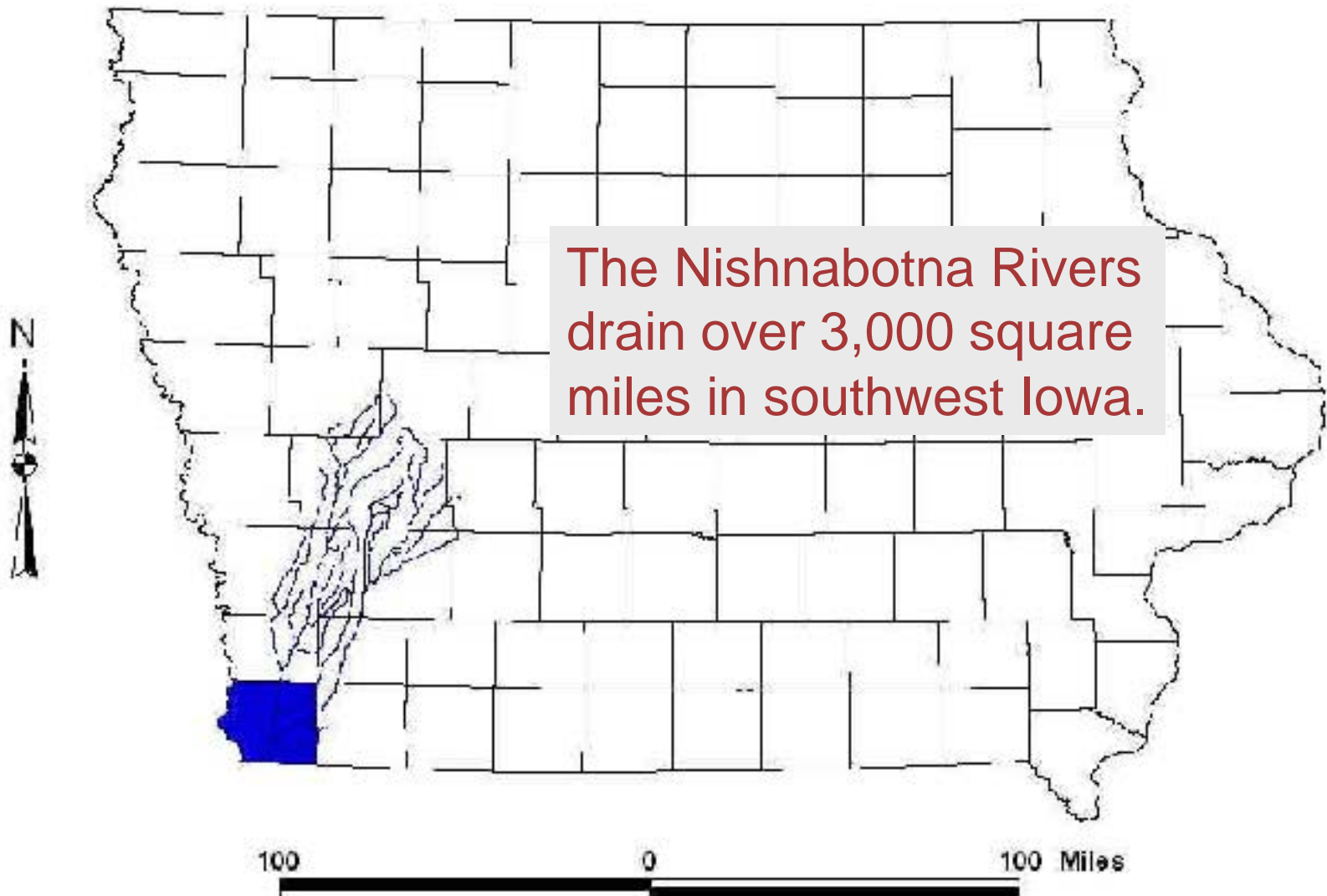


Two River's Project Easements and Applications

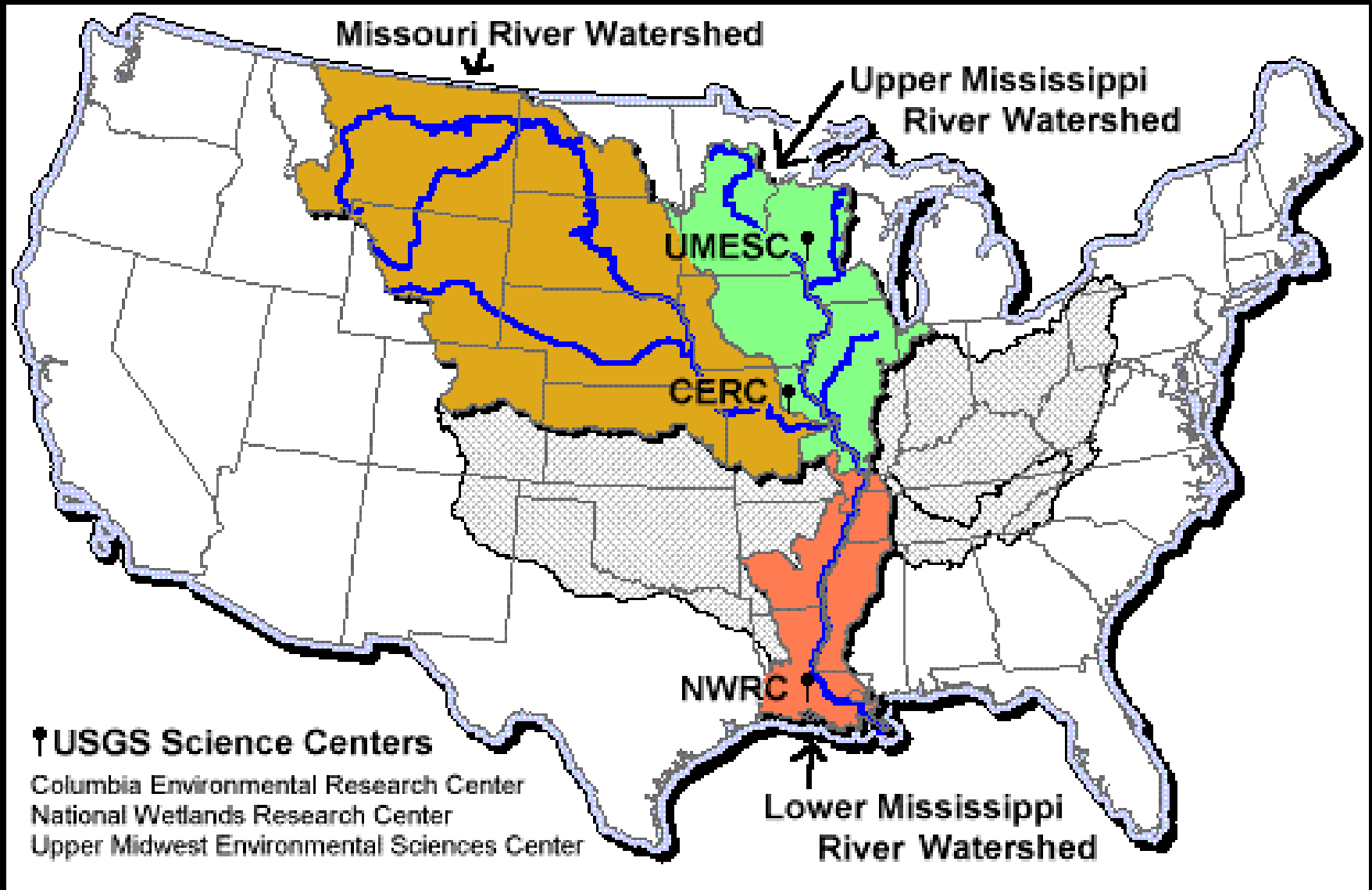
Fremont County has three rivers which can flood over 30,000 acres at any one flood event.



Nishnabotna River Watershed



Our other flood plain involves a slightly larger watershed.



Overview

- Flooding History and Need for Project Partnerships
- Two Rivers Project Objectives
 - Wetland and Riverine Habitat Restoration
 - Easement Program Management
 - Wetland and Riverine Systems Education & Outreach

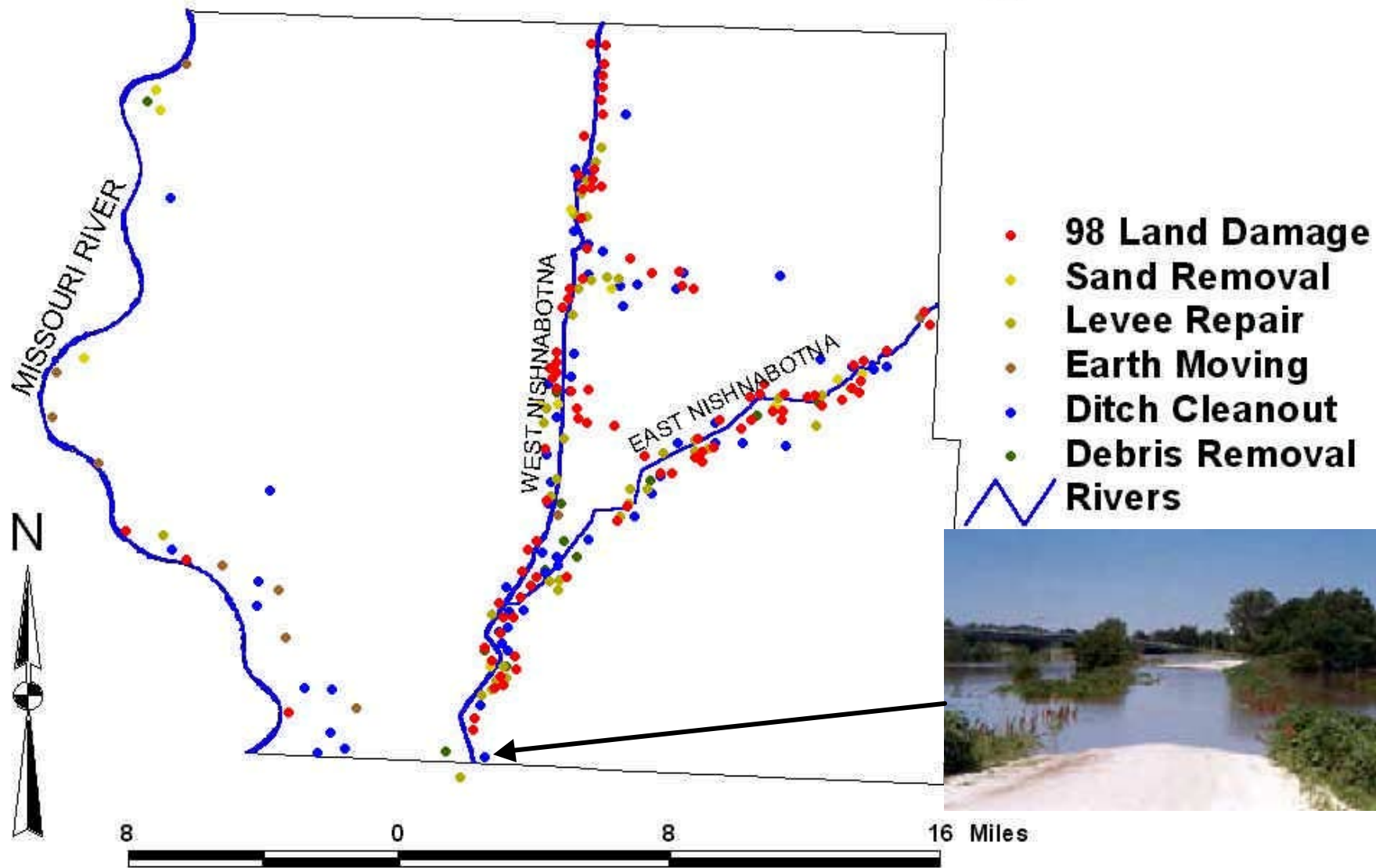
Flooding History and Need for Project



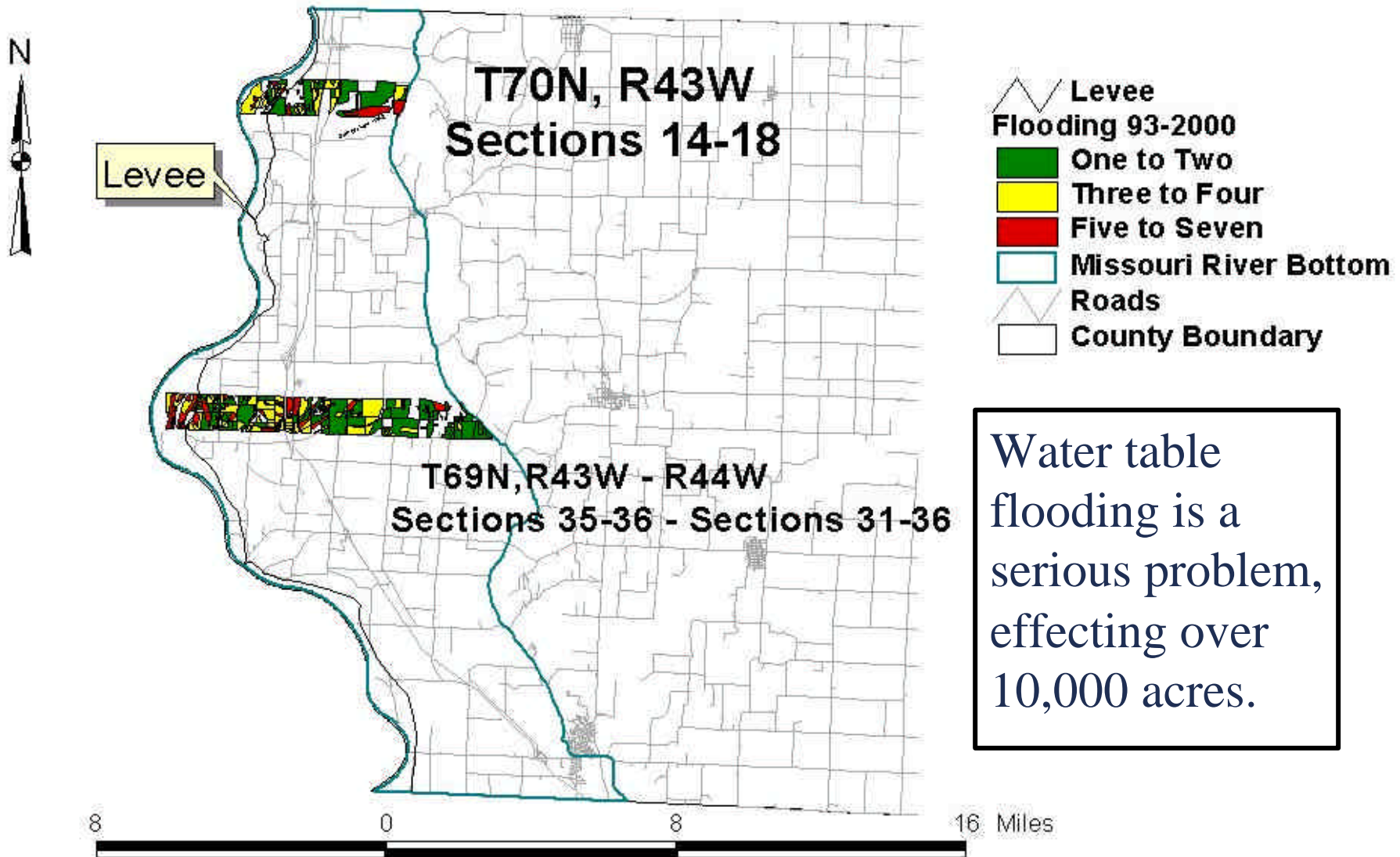
Overland flooding causes several million dollars worth of damages to homes, towns and cropland.



98 Flood Damage



Recently Damaged Crops in Fremont County





July 2-5 FOURTH OF JULY CREEK AND INDEPENDENCE CREEK

Lewis and Clark celebrated
the nation's 28th birthday

July 2-5

Doniphan
Atchison
July 3
July 4
July 5

July 14-18 NISHNABOTNA RIVER AND OUT OF MISSOURI

Few rivers noted by Lewis and Clark have
changed as much as the Nishnabotna,
which has lost its meandering lower
reaches. It now meets the Missouri 17
miles north of the 1804 confluence. Sev-
eral large islands also have disappeared.
In this area the explorers encountered
an ocean of grass that extended to the
horizon—the Great Plains.

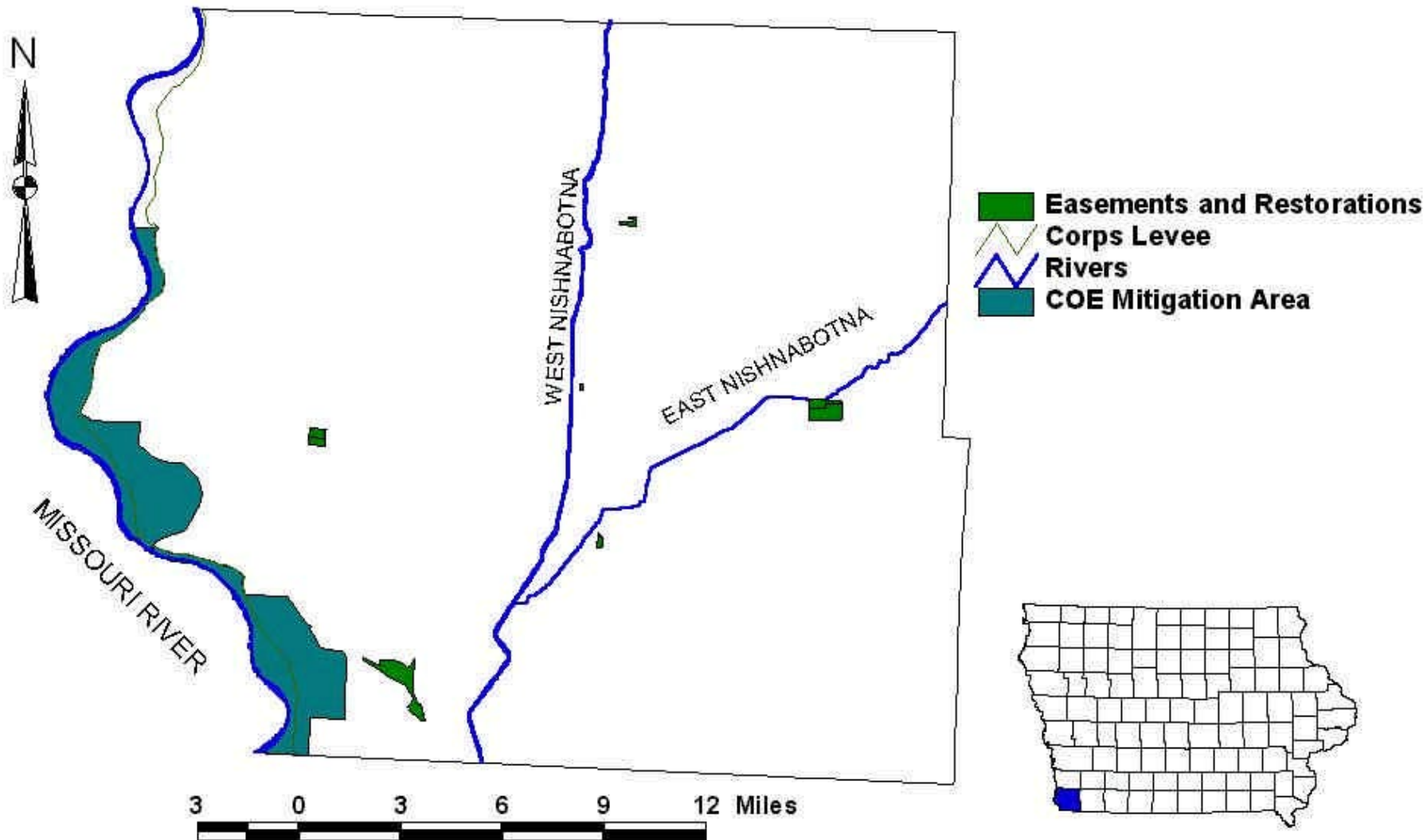
Quite often, total restoration is not feasible, such as on the Missouri River. The river has been channelized, leveed, and the floodplain cleared of trees.

1938

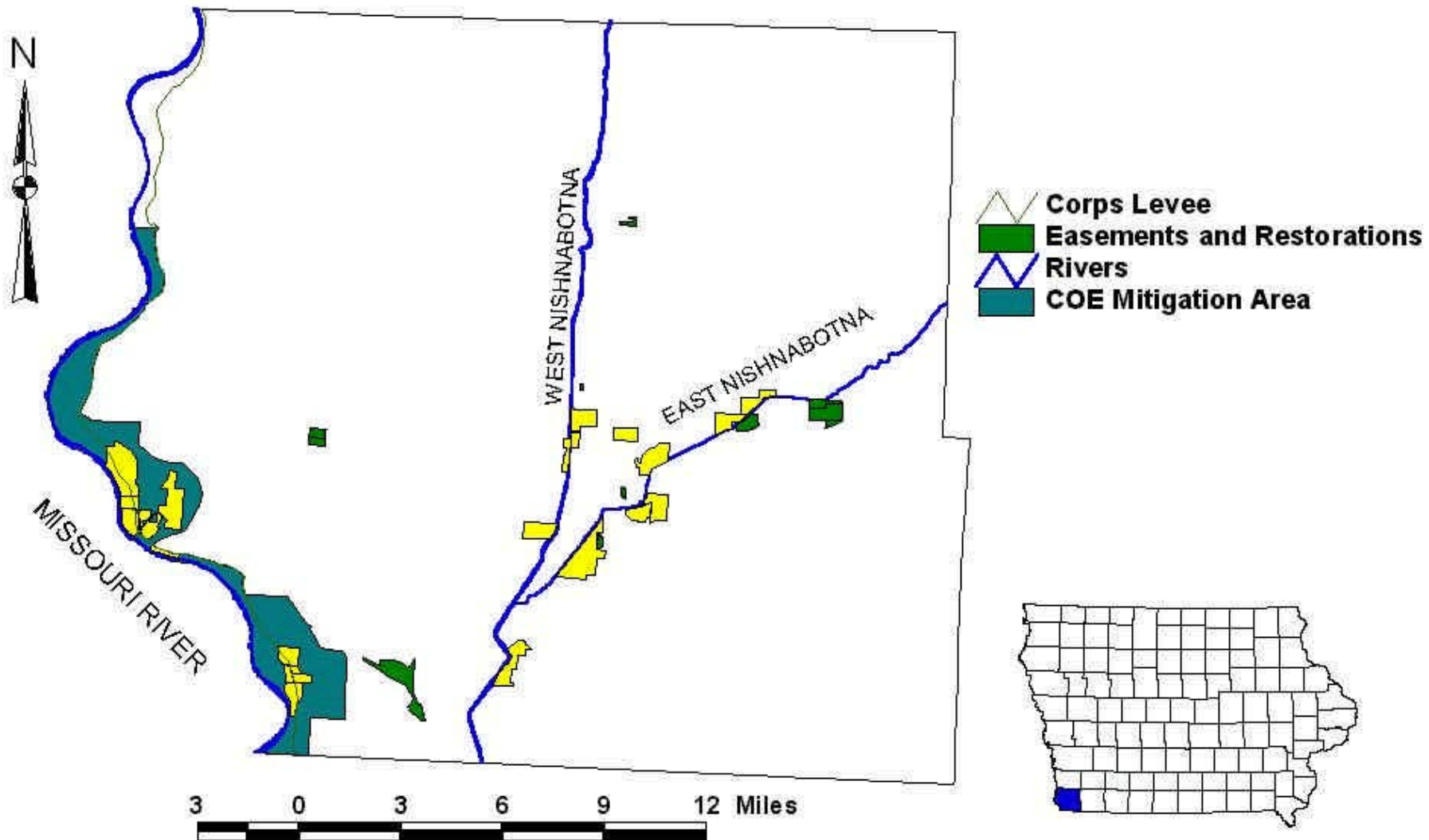
1994

0 0.6 Miles

Easements Prior to Two Rivers Project



Easements Accepted Since Two Rivers Project Began



Wetland Restoration

Wetland Reserve Program
Easements Restorations

Restore Hydrology
if at all Possible

Use Levees and
Crossdikes for
Different Habitats

Sometimes, Nothing
Is Done, but Nature
Is Allowed to Take Over

Flood Plain Restoration

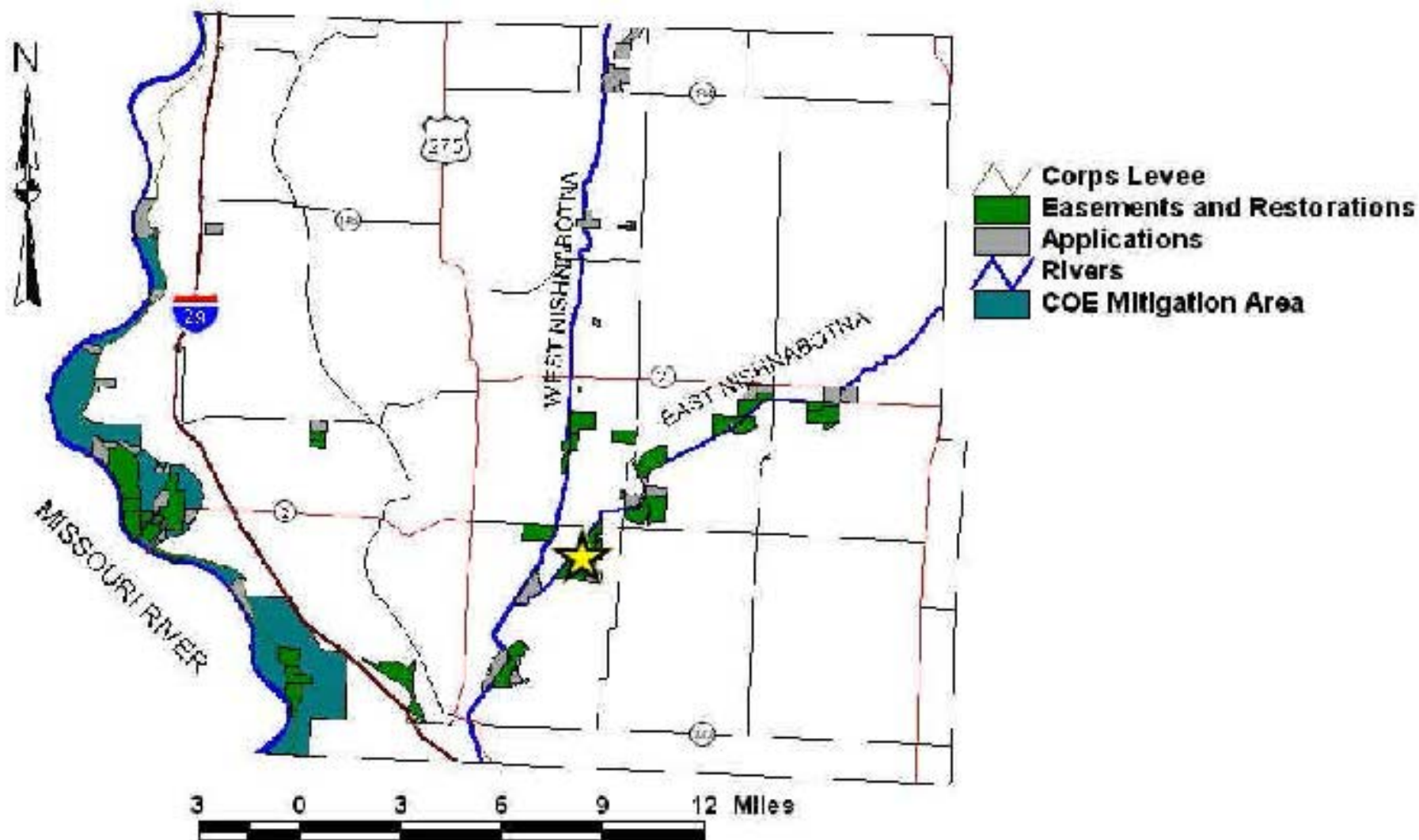


Easement Restoration Partners

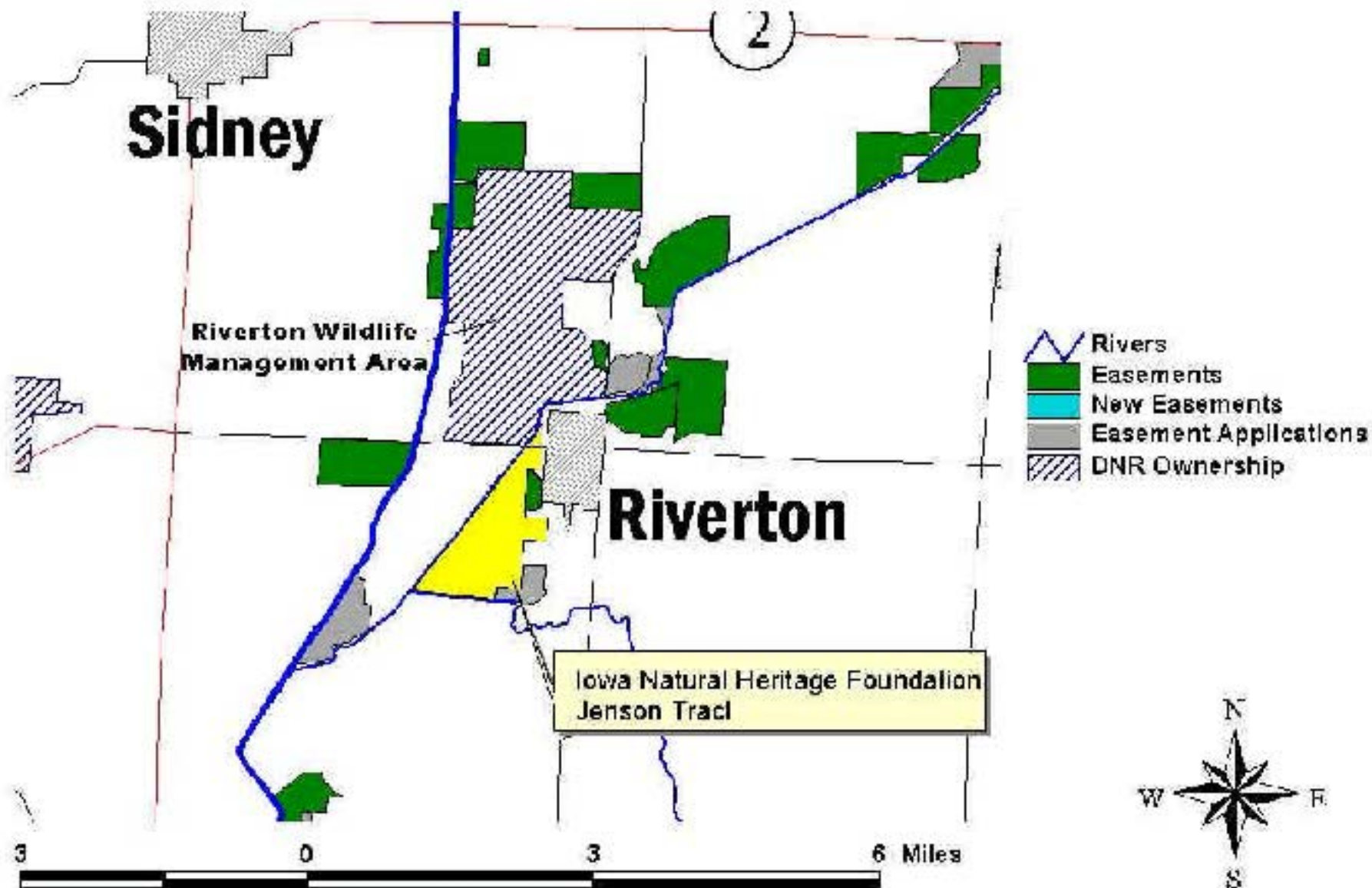
- Environmental Protection Agency fund district employee/wetland specialist and special projects, such as outdoor classroom.
- Ducks Unlimited and US Fish & Wildlife Service provides cost-share incentives from \$500 per person for work not covered by NRCS/DSC.
- Drainage Districts provided cost-share for flood control.
- US Army Corps of Engineers and Iowa Department of Natural Resources buy residual values of easements and completes and manages restoration.

Iowa Department of Natural Resources

Jenson Tract



Management Alternatives



Iowa Natural Heritage Foundation - Jenson Tract

West Nishnabotna

East Nishnabotna

GOVERNOR'S ESTATE

Riverton

2 Miles



Some native vegetation does exist, but most of the 650 acres has been ditched and farmed, with pumps even installed to push water into the East Nishnabotna River.



Our first step in the restoration is to get a topographic survey done. This focuses our ideas and lets us better estimate costs for our structures and management alternatives.

Levee

Topography

910 - 917

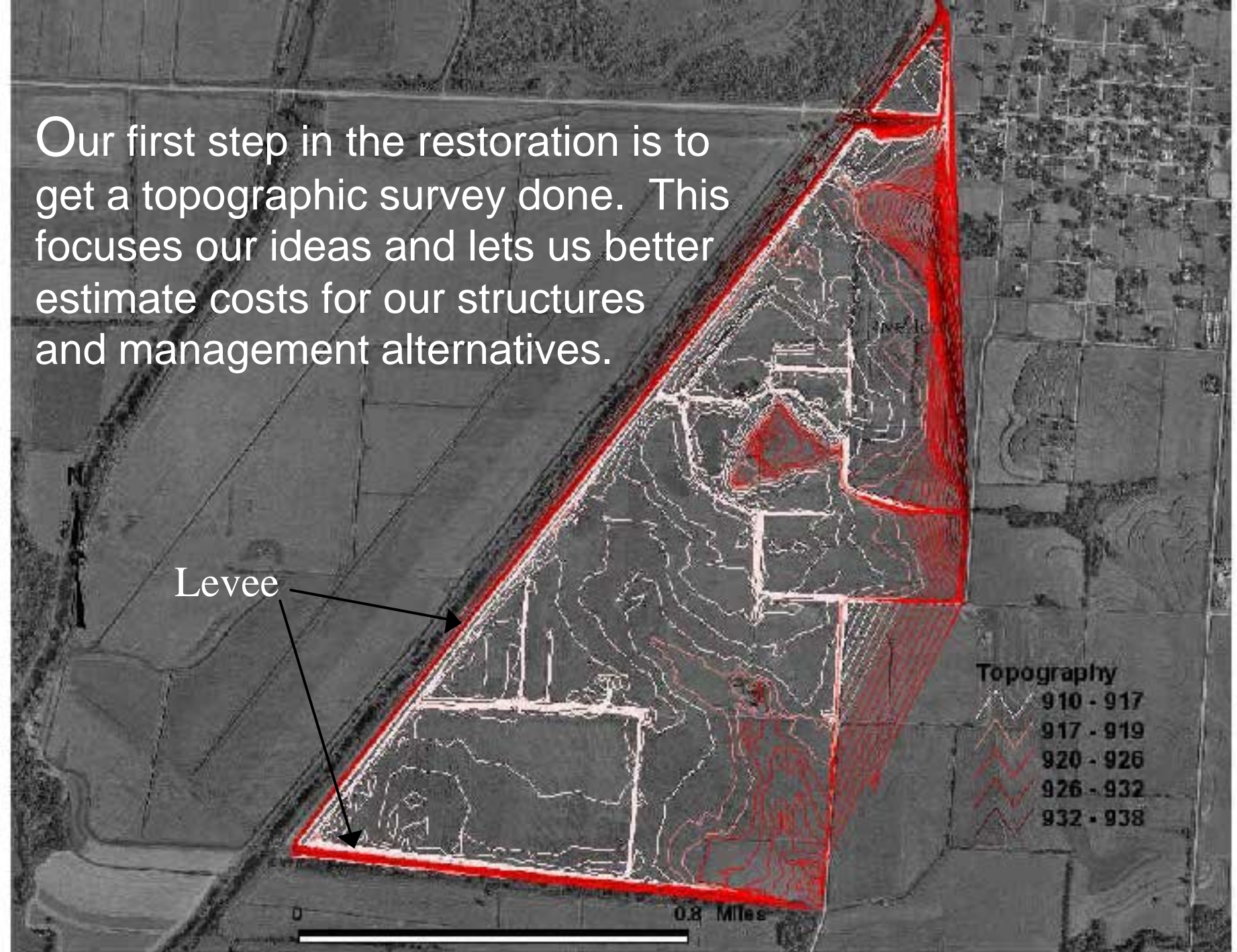
917 - 919

920 - 926

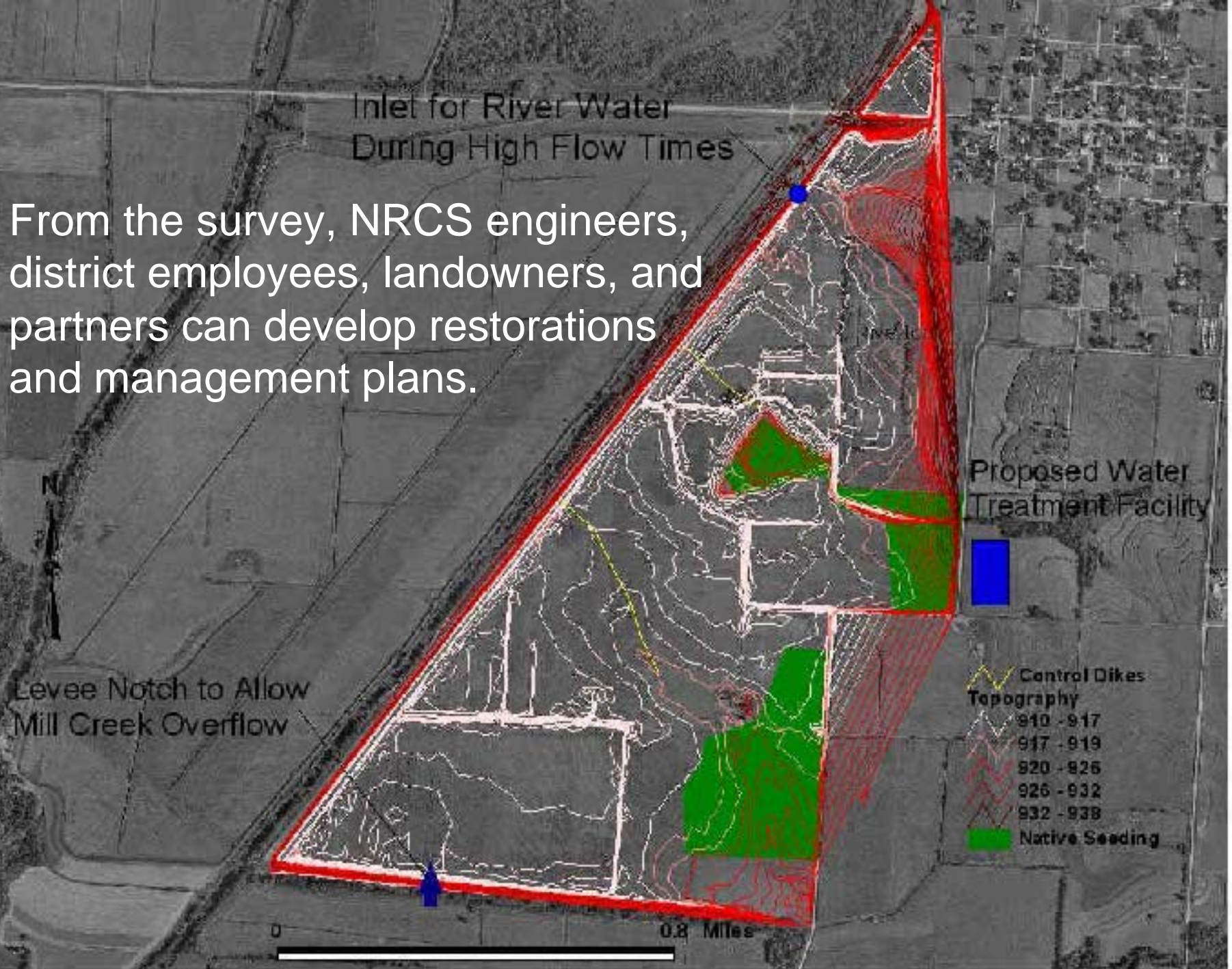
926 - 932

932 - 938

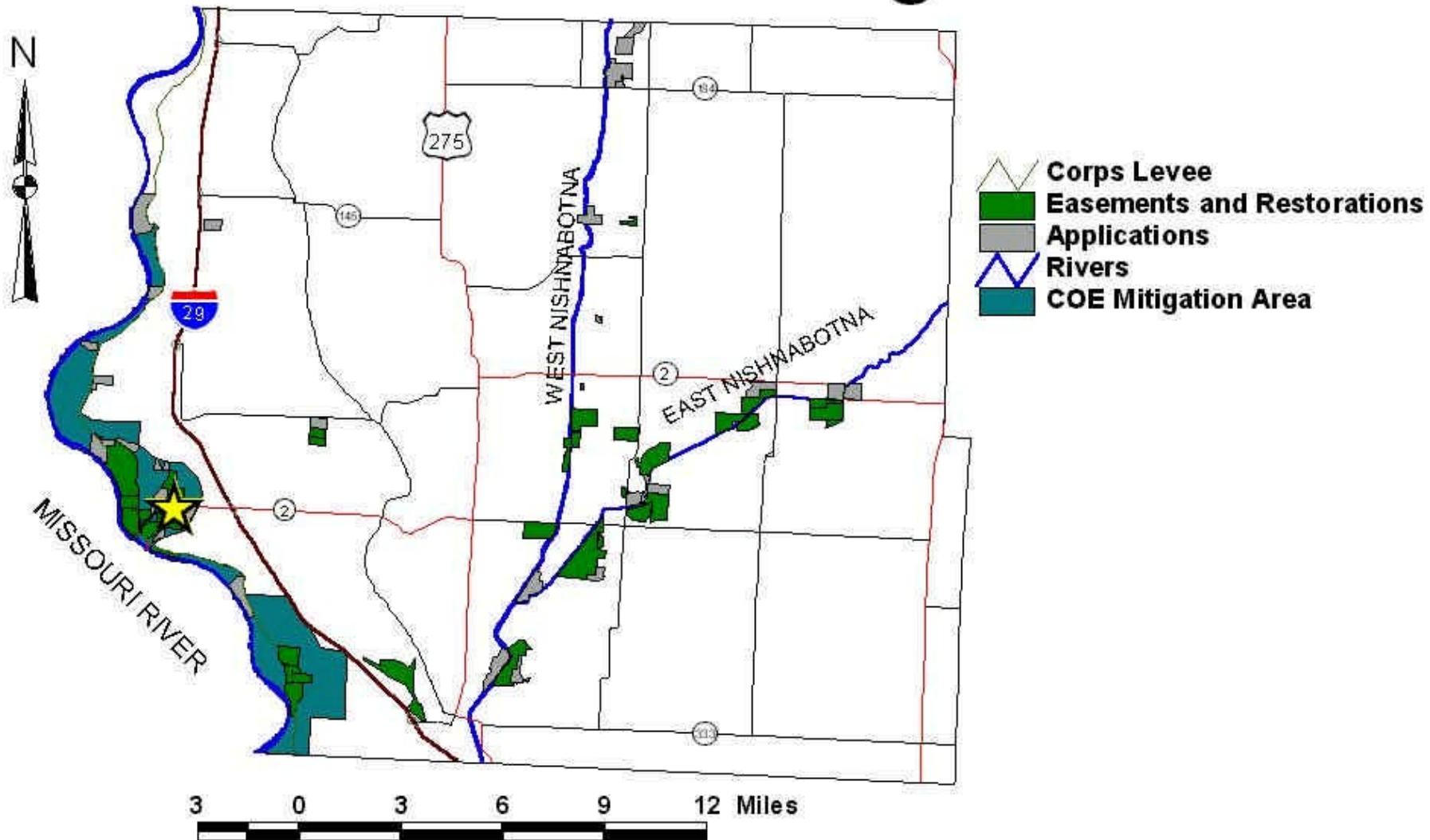
0.8 Miles



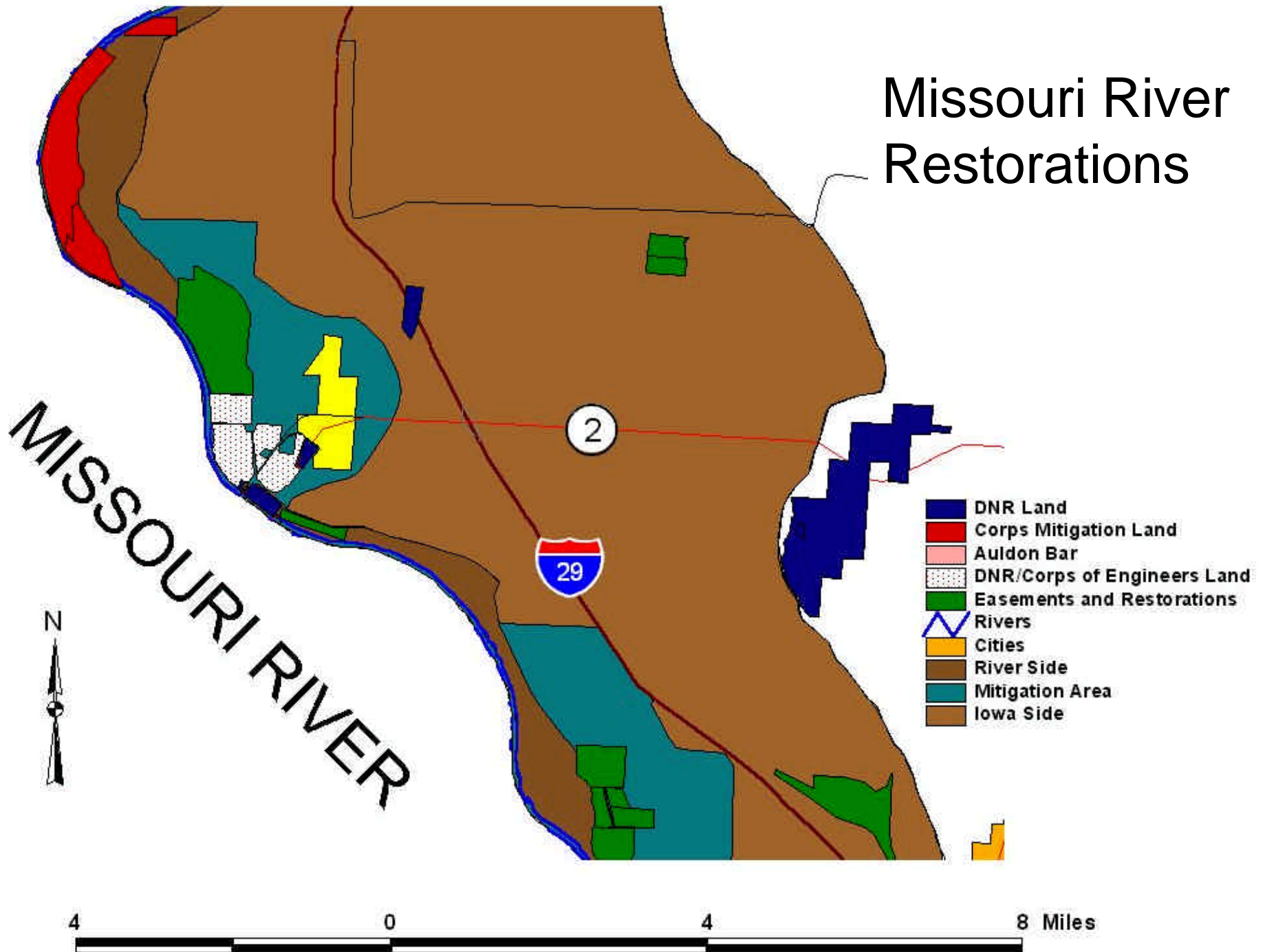
From the survey, NRCS engineers, district employees, landowners, and partners can develop restorations and management plans.



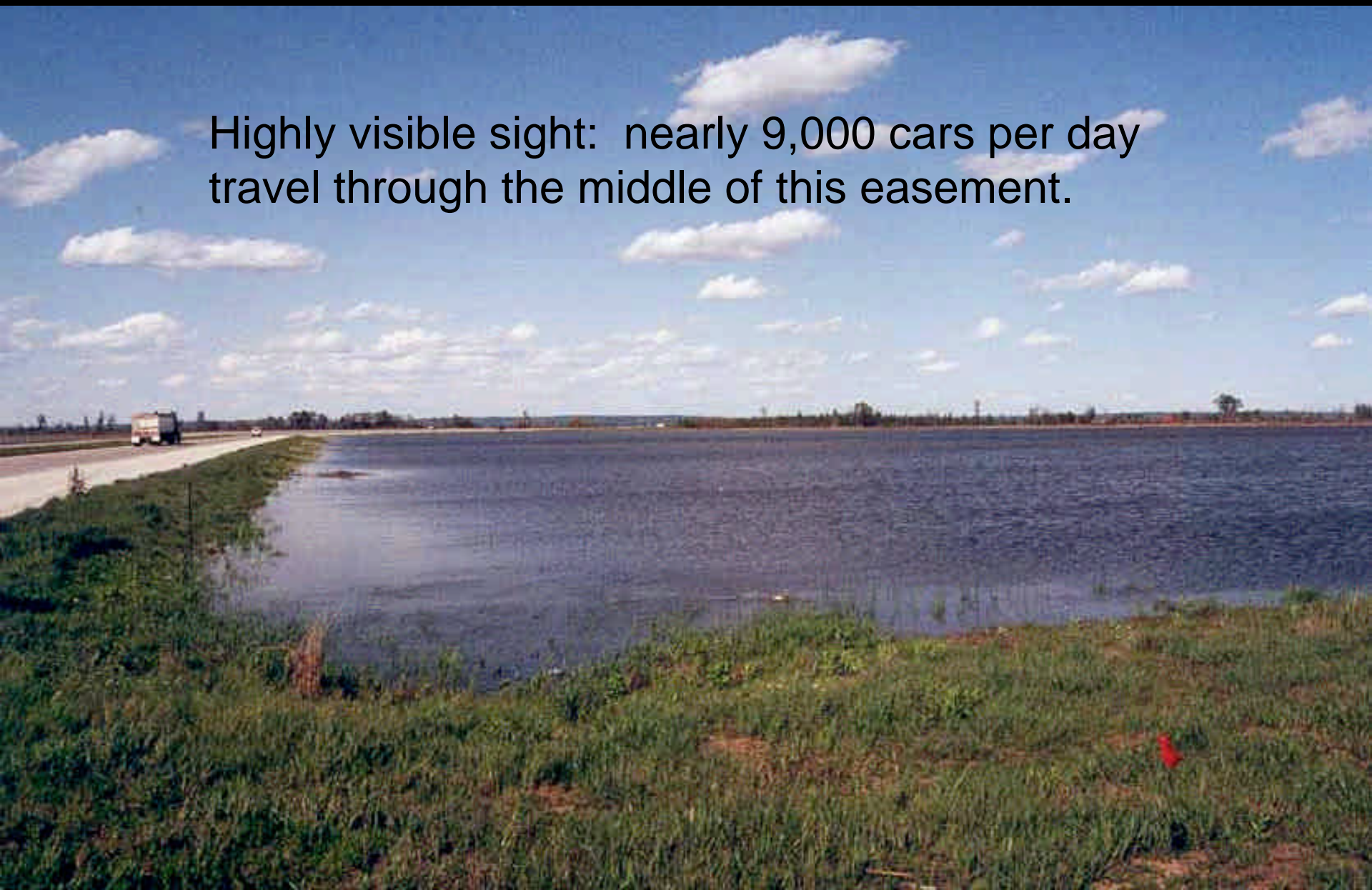
Missouri River/Highway 2 Easement Management



Missouri River Restorations



Highly visible sight: nearly 9,000 cars per day travel through the middle of this easement.



An aerial photograph of Nebraska City and the surrounding region. The city is visible on the left side of the image. A large area to the right of the city is outlined in green, indicating a specific region of interest. The text "Opportunities exist to teach others about NRCS programs and alternatives to conventional farming." is overlaid on the map. A north arrow is located in the upper left corner, and a scale bar at the bottom indicates distances in miles.

**Opportunities exist to teach others
about NRCS programs and
alternatives to conventional farming.**

Nebraska City

0.5

0

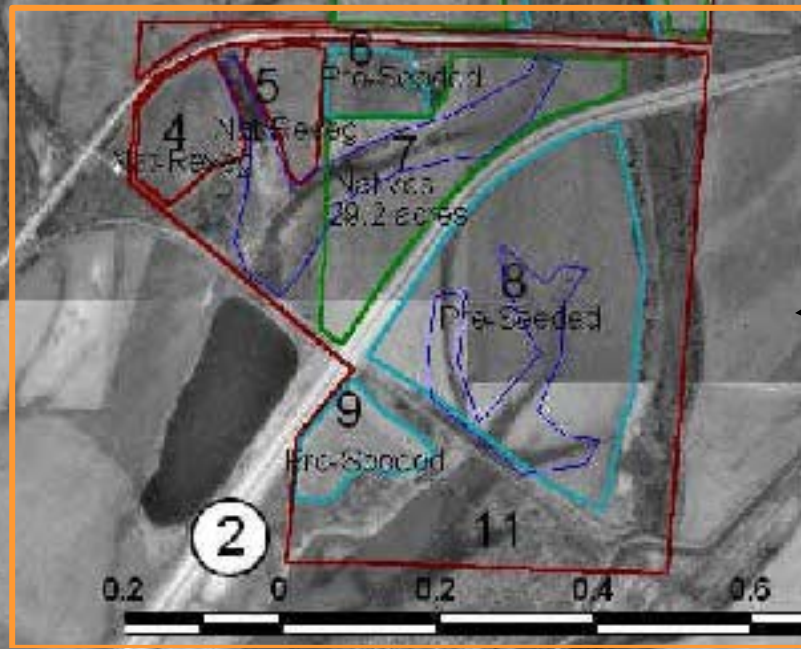
0.5

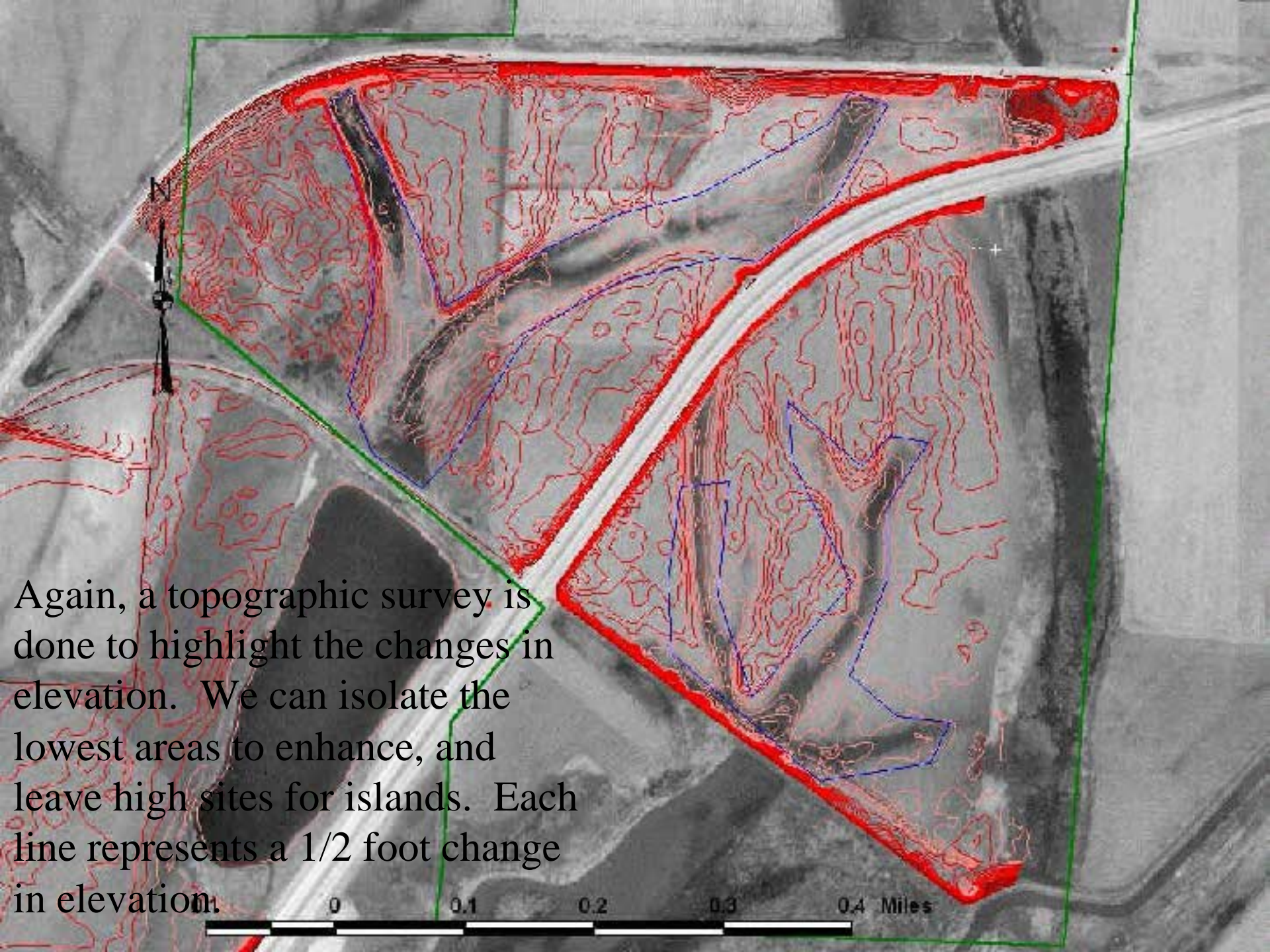
1

1.5

2 Miles

This easement has everything from aging flood plain timber to dry farmland. Many of the areas will be left as they are, but the large fields next to the highway allow us to do work in the public eye.





N

Again, a topographic survey is done to highlight the changes in elevation. We can isolate the lowest areas to enhance, and leave high sites for islands. Each line represents a 1/2 foot change in elevation.

0

0.1

0.2

0.3

0.4 Miles

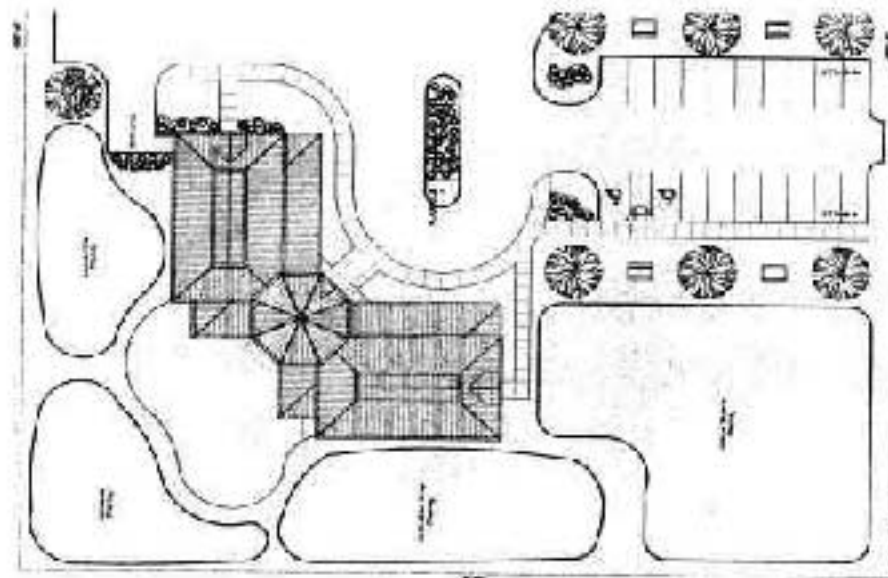
Reaching the Public

Southwest Iowa Visitor's Center



Proposed Building with
indoor wetland displays.

Wetland/Natural Resources
Education and Display Area



Bike Trails



Proposed Bike Trails

Highway 2

Wetland Contracts



2

Proposed
Visitor Center

Lewis and Clark
Center

Steamboat Trace
Bike Trail

Bike Trails

Missouri River

0

1 Miles



Bike trails through these new permanent wetland easements could increase the number of people who see the area and take notice of NRCS programs.



Conclusion

- Fremont County has enrolled over 5,500 acres since 1998 by working together with its partners.
- Plans are to enroll an additional 4,000 in the next few years.
- Restorations vary widely from Nishnabotna Rivers to the flood plain of the Missouri River.
- Native vegetation will be restored on easements, considering data from original land surveys, current site conditions, and landowner objectives.
- Through our programs, we can reduce flood damage within the county, and provide nearly 7,000 acres of wetland, flood plain and upland habitat that was nearly all cropland only a few years ago.

